

<110> DLF-Trifolium A/S  
Risoe National Laboratory  
Nielsen, Klaus K  
Jensen, Christian S  
Gao, Caixa  
Salchert, Klaus

<120> Method of Repressing Flowering in a Plant

<130> P12791PC

<140> PCT/EP03/02629

<141> 2003-03-10

<150> US 60/363,125

<151> 2002-03-11

<160> 29

<170> PatentIn version 3.1

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<213> Lolium perenne

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<212> PRT

<213> Lolium perenne

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Ser Asn Lys Leu Val Phe Asn Gly His Glu Leu Tyr Pro Ser Ala Val  
35 40 45

Val Ser Lys Pro Arg Val Glu Val Gln Gly Gly Asp Leu Arg Ser Leu  
50 55 60

Phe Thr Leu Val Met Thr Asp Pro Asp Val Pro Gly Pro Ser Asp Pro  
65 70 75 80

Tyr Leu Arg Glu His Leu His Trp Ile Val Ser Asn Ile Pro Gly Thr  
85 90 95

Thr Asp Ala Ser Phe Gly Gly Glu Val Met Ser Tyr Glu Ser Pro Lys  
100 105 110

Pro Asn Ile Gly Ile His Arg Phe Ile Phe Val Leu Phe Lys Gln Lys  
115 120 125

Arg Arg Gln Thr Val Ser Val Pro Ser Phe Arg Asp His Phe Asn Thr  
130 135 140

Arg Gln Phe Ala Val Asp Asn Asp Leu Gly Leu Pro Val Ala Ala Val  
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Tyr Phe Asn Cys Gln Arg Glu Thr Ala Ala Arg Arg Arg  
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Val Ser Tyr Asn Lys Lys Gln Val Ser Asn Gly His Glu Leu Phe Pro  
 35 40 45

Ser Ser Val Ser Ser Lys Pro Arg Val Glu Ile His Gly Gly Asp Leu  
 50 55 60

Arg Ser Phe Phe Thr Leu Val Met Ile Asp Pro Asp Val Pro Gly Pro  
 65 70 75 80

Ser Asp Pro Phe Leu Lys Glu His Leu His Trp Ile Val Thr Asn Ile  
 85 90 95

Pro Gly Thr Thr Asp Ala Thr Phe Gly Lys Glu Val Val Ser Tyr Glu  
 100 105 110

Leu Pro Arg Pro Ser Ile Gly Ile His Arg Phe Val Phe Val Leu Phe  
 115 120 125

Arg Gln Lys Gln Arg Arg Val Ile Phe Pro Asn Ile Pro Ser Arg Asp  
 130 135 140

His Phe Asn Thr Arg Lys Phe Ala Val Glu Tyr Asp Leu Gly Leu Pro  
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Val Ala Ala Val Phe Phe Asn Ala Gln Arg Glu Thr Ala Ala Arg Lys  
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<211> 178

<212> PRT

<213> Brassica napus

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Val Ser Tyr Asn Lys Lys Gln Val Ser Asn Gly His Glu Leu Phe Pro  
35 40 45

Leu Ala Val Ser Ser Lys Pro Arg Val Glu Ile His Asp Gly Asp Leu  
50 55 60

Arg Ser Phe Phe Thr Leu Val Met Thr Asp Pro Asp Val Pro Asn Pro  
65 70 75 80

Ser Asp Pro Phe Leu Lys Glu Arg Leu His Trp Leu Val Met Asn Ile  
85 90 95

Pro Gly Thr Thr Asp Ala Thr Phe Gly Lys Glu Val Val Ser Tyr Glu  
100 105 110

Leu Pro Lys Pro Asn Ile Gly Ile His Arg Tyr Val Phe Val Leu Phe  
115 120 125

Arg Gln Lys Gln Arg Arg Val Lys Phe Pro Ser Asn Ile Ile Ser Arg  
130 135 140

Asp Gln Phe Asn Thr Arg Glu Phe Ala Ile Glu Asn Asp Leu Gly Leu  
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Pro Val Ala Ala Val Phe Phe Asn Ala Gln Arg Glu Thr Ala Ser Arg  
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Arg Arg

<210> 6

<211> 178

<212> PRT

<213> Brassica napus

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Val Val Gly Asp Val Leu Asp Asn Phe Ala Pro Thr Ile Lys Met Asn  
20 25 30

Val Ser Tyr Asn Lys Lys Gln Val Ser Asn Gly His Glu Leu Phe Pro  
35 40 45

Leu Ala Val Ser Ser Lys Pro Arg Val Glu Ile His Asp Gly Asp Leu  
50 55 60

Arg Ser Phe Phe Thr Leu Val Met Thr Asp Pro Asp Val Pro Asn Pro  
65 70 75 80

Ser Asp Pro Phe Leu Lys Glu Arg Leu His Trp Leu Val Met Asn Ile  
85 90 95

Pro Gly Thr Thr Asp Ala Thr Phe Gly Lys Glu Val Val Ser Tyr Glu  
100 105 110

Leu Pro Lys Pro Asn Ile Gly Ile His Arg Tyr Val Phe Val Leu Phe  
115 120 125

Arg Gln Lys Gln Arg Arg Val Lys Phe Pro Ser Asn Ile Ile Ser Arg  
130 135 140

Asp Gln Phe Asn Thr Arg Glu Phe Ala Ile Glu Asn Asp Leu Gly Leu  
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Pro Val Ala Ala Val Phe Phe Asn Ala Gln Arg Glu Thr Ala Ser Arg  
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Arg Arg

<210> 7

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<213> Antirrhinum sp.

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Tyr Asn Ser Asn Asn Ser Ile Lys His Val Tyr Asn Gly His Glu Leu  
35 40 45

Phe Pro Ser Ala Val Thr Ser Thr Pro Arg Val Glu Val His Gly Gly  
50 55 60

Asp Met Arg Ser Phe Phe Thr Leu Ile Met Thr Asp Pro Asp Val Pro  
65 70 75 80

Gly Pro Ser Asp Pro Tyr Leu Arg Glu His Leu His Trp Ile Val Thr  
85 90 95

Asp Ile Pro Gly Thr Thr Asp Ser Ser Phe Gly Lys Glu Val Val Ser  
100 105 110

Tyr Glu Met Pro Arg Pro Asn Ile Gly Ile His Arg Phe Val Phe Leu  
115 120 125

Leu Phe Lys Gln Lys Lys Arg Gly Gln Ala Met Leu Ser Pro Pro Val  
130 135 140

Val Cys Arg Asp Gly Phe Asn Thr Arg Lys Phe Thr Gln Glu Asn Glu  
145 150 155 160

Leu Gly Leu Pro Val Ala Ala Val Phe Phe Asn Cys Gln Arg Glu Thr  
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Ala Ala Arg Arg Arg  
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<210> 8

<211> 175

<212> PRT

<213> Nicotiana tabacum

<400> 8.

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Glu Val Val Asp Tyr Phe Thr Pro Ser Val Lys Met Ser Val Thr Tyr  
20 25 30

Asn Ser Ser Lys His Val Tyr Asn Gly His Glu Leu Phe Pro Ser Ser  
35 40 45

Val Thr Ser Lys Pro Arg Val Glu Val His Gly Gly Asp Leu Arg Ser  
50 55 60

Phe Phe Thr Met Ile Met Ile Asp Pro Asp Val Pro Gly Pro Ser Asp  
65 70 75 80

Pro Tyr Leu Arg Glu His Leu His Trp Ile Val Thr Asp Ile Pro Gly  
85 90 95

Thr Thr Asp Cys Ser Phe Gly Lys Glu Ile Val Gly Tyr Glu Met Pro  
100 105 110

Arg Pro Asn Ile Gly Ile His Arg Phe Val Phe Leu Leu Phe Lys Gln  
115 120 125

Lys Lys Arg Gln Thr Val Leu Thr Ala Pro Leu Ser Arg Asp Arg Phe  
130 135 140

Asn Thr Arg Lys Phe Ala Glu Glu Asn Glu Leu Gly Ser Pro Val Ala  
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Ala Val Phe Phe Asn Cys Gln Arg Glu Thr Ala Ala Arg Arg Arg  
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<213> Nicotiana tabacum

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20 25 30

Asn Ser Ser Lys His Val Tyr Asn Gly His Glu Leu Phe Pro Ser Ser  
35 40 45

Val Thr Ser Lys Pro Arg Val Glu Val His Gly Gly Asp Leu Arg Ser  
50 55 60

Phe Phe Thr Leu Ile Met Ile Asp Pro Asp Val Pro Gly Pro Ser Asp  
65 70 75 80

Pro Tyr Leu Arg Glu His Leu His Trp Ile Val Thr Asp Ile Pro Gly  
85 90 95

Thr Thr Asp Cys Ser Phe Gly Arg Glu Ile Val Gly Tyr Glu Met Pro  
100 105 110

Arg Pro Asn Ile Gly Ile His Arg Phe Val Phe Leu Leu Phe Lys Gln  
115 120 125

Lys Lys Arg Gln Thr Leu Leu Ser Ala Pro Leu Ser Arg Asp Arg Phe  
130 135 140

Asn Thr Arg Lys Phe Ser Glu Glu Asn Glu Leu Gly Ser Pro Val Ala  
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Ala Ala Phe Phe Asn Cys Gln Arg Glu Thr Ala Ala Arg Arg Arg  
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<210> 10

<211> 175

<212> PRT

<213> Lycopersicon esculentum

<400> 10

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Asn Asn Asn Lys His Val Tyr Asn Gly His Glu Phe Phe Pro Ser Ser  
35 40 45

Val Thr Ser Lys Pro Arg Val Glu Val His Gly Gly Asp Leu Arg Ser  
50 55 60

Phe Phe Thr Leu Ile Met Ile Asp Pro Asp Val Pro Gly Pro Ser Asp

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75

80

Pro Tyr Leu Arg Glu His Leu His Trp Ile Val Thr Asp Ile Pro Gly  
85 90 95

Thr Thr Asp Cys Ser Phe Gly Arg Glu Val Val Gly Tyr Glu Met Pro  
100 105 110

Arg Pro Asn Ile Gly Ile His Arg Phe Val Phe Leu Leu Phe Lys Gln  
115 120 125

Lys Lys Arg Gln Thr Ile Ser Ser Ala Pro Val Ser Arg Asp Gln Phe  
130 135 140

Ser Ser Arg Lys Phe Ser Glu Glu Asn Glu Leu Gly Ser Pro Val Ala  
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<210> 11

<211> 174

<212> PRT

<213> Nicotiana tabacum

<400> 11

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Glu Val Val Asp Ser Phe Asn Pro Ser Val Lys Leu Asn Val Ile Tyr  
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Asn Gly Ser Lys Gln Val Phe Asn Gly His Glu Leu Met Pro Ala Val  
35 40 45

Ile Ala Ala Lys Pro Arg Val Glu Ile Gly Gly Glu Asp Met Arg Ser  
50 55 60

Ala Tyr Thr Leu Ile Met Thr Asp Pro Asp Val Pro Gly Pro Ser Asp  
65 70 75 80

Pro Tyr Leu Arg Glu His Leu His Trp Ile Val Thr Asp Ile Pro Gly  
85 90 95

Ser Thr Asp Ser Ser Phe Gly Arg Glu Ile Val Ser Tyr Glu Ser Pro  
100 105 110

Lys Pro Val Ile Gly Ile His Arg Tyr Val Leu Leu Leu Tyr Lys Gln  
 115 120 125

Ser Gly Arg Gln Thr Val Lys Pro Ala Ala Thr Arg Asp His Phe Asn  
 130 135 140

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Val Tyr Phe Asn Ala Gln Arg Glu Thr Ala Ala Arg Arg Arg  
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<210> 12

<211> 173

<212> PRT

<213> Oryza sativa

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Val Leu Asp Thr Phe Asn Pro Cys Met Lys Met Ile Val Thr Tyr Asn  
 20 25 30

Ser Asn Lys Leu Val Phe Asn Gly His Glu Leu Tyr Pro Ser Ala Val  
 35 40 45

Val Ser Lys Pro Arg Val Glu Val Gln Gly Gly Asp Leu Arg Ser Phe  
 50 55 60

Phe Thr Leu Val Met Thr Asp Pro Asp Val Pro Gly Pro Ser Asp Pro  
 65 70 75 80

Tyr Leu Arg Glu His Leu His Trp Ile Val Thr Asp Ile Pro Gly Thr  
 85 90 95

Thr Asp Ala Ser Phe Gly Arg Glu Val Ile Ser Tyr Glu Ser Pro Lys  
 100 105 110

Pro Asn Ile Gly Ile His Arg Phe Ile Phe Val Leu Phe Lys Gln Lys  
 115 120 125

Arg Arg Gln Thr Val Ile Val Pro Ser Phe Arg Asp His Phe Asn Thr  
 130 135 140

Arg Arg Phe Ala Glu Glu Asn Asp Leu Gly Leu Pro Val Ala Ala Val  
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Tyr Phe Asn Ala Gln Arg Glu Thr Ala Ala Arg Arg Arg  
 165 170

<210> 13

<211> 173

<212> PRT

<213> Oryza sativa

<400> 13

Met Ser Arg Ser Val Glu Pro Leu Val Val Gly Arg Val Ile Gly Glu  
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Val Ile Asp Ser Phe Asn Pro Cys Thr Lys Met Ile Val Thr Tyr Asn  
 20 25 30

Ser Asn Lys Leu Val Phe Asn Gly His Glu Phe Tyr Pro Ser Ala Val  
 35 40 45

Val Ser Lys Pro Arg Val Glu Val Gln Gly Gly Asp Met Arg Ser Phe  
 50 55 60

Phe Thr Leu Val Met Thr Asp Pro Asp Val Pro Gly Pro Ser Asp Pro  
 65 70 75 80

Tyr Leu Arg Glu His Leu His Trp Ile Val Thr Asp Ile Pro Gly Thr  
 85 90 95

Thr Asp Ala Ser Phe Gly Arg Glu Ile Ile Ser Tyr Glu Ser Pro Lys  
 100 105 110

Pro Ser Ile Gly Ile His Arg Phe Val Phe Val Leu Phe Lys Gln Lys  
 115 120 125

Arg Arg Gln Ala Val Val Val Pro Ser Ser Arg Asp His Phe Asn Thr  
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Tyr Phe Asn Ala Gln Arg Glu Thr Ala Ala Arg Arg Arg  
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<400> 14

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Gly Gln Arg Glu Val Thr Asn Gly Leu Asp Leu Arg Pro Ser Gln Val  
 35 40 45

Gln Asn Lys Pro Arg Val Glu Ile Gly Gly Glu Asp Leu Arg Asn Phe  
 50 55 60

Tyr Thr Leu Val Met Val Asp Pro Asp Val Pro Ser Pro Ser Asn Pro  
 65 70 75 80

His Leu Arg Glu Tyr Leu His Trp Leu Val Thr Asp Ile Pro Ala Thr  
 85 90 95

Thr Gly Thr Thr Phe Gly Asn Glu Ile Val Cys Tyr Glu Asn Pro Ser  
 100 105 110

Pro Thr Ala Gly Ile His Arg Val Val Phe Ile Leu Phe Arg Gln Leu  
 115 120 125

Gly Arg Gln Thr Val Tyr Ala Pro Gly Trp Arg Gln Asn Phe Asn Thr  
 130 135 140

Arg Glu Phe Ala Glu Ile Tyr Asn Leu Gly Leu Pro Val Ala Ala Val  
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<210> 15

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

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